



Physical Test Solutions

Innovative Solutions in Material Test Equipment

Rockwell and Brinell Hardness Testers



ROCKWELL & BRINELL
ROCKWELL & BRINELL



Rockwell Hardness Testers

Physical Test Solutions (PTS) offers a complete line of hardness testers for Rockwell testing applications. Reliability and repeatability is a trait in all models including the basic analog model as well as the digital model. All testers are delivered with a standard set of accessories including hardness test blocs, anvils and penetrators.

RDHT

Model RDHT Rockwell hardness tester performs standard Rockwell tests with the convenience of a digital display. The unit uses a frictionless loading shaft instead of the conventional type. The application of preliminary test force is controlled by a magnetic clutch, so that the accuracy of preliminary test force is greatly increased. The process of applying, holding and releasing of total test force is performed automatically, thus eliminating human error in those operations. The measured hardness value and data processing result can be recorded automatically on the printer.

Specifications

- Measuring range: 20-88HRA, 20-100HRB, 20-70HRC
- Test force: 588.4, 980.7, 1471N (60, 100, 150kgf)
- Maximum height of test piece: 210mm
- Throat depth: 165mm
- Unit for display: 0.1HR
- Power supply: 220V AC or 110V AC, 50/60Hz
- Dimensions: 522 x 220 x 729mm
- Weight: approx. 98kg

Standard Accessories

- Large flat anvil
- Small flat anvil
- Large V anvil
- Diamond penetrator
- 1/16" steel ball penetrator
- Rockwell test block: 5 pieces



RHT-150

Model NRHT-150 is a new stylish Rockwell hardness tester that combines elegant design with reliability at cost effective price.

Specifications

- Measuring range: 20-88HRA, 20-100HRB, 20-70HRC
- Test force: 588.4, 980.7, 1471N (60,100,150kgf)
- Maximum test specimen height: 200 mm
- Throat depth: 165 mm
- Dimensions: 522 x 300 x 700 mm
- Weight: approx. 85kg

Standard Accessories

- ✓ Diamond penetrators
- ✓ 1/16" steel ball penetrators
- ✓ Rockwell standardized test block: 5 pieces.
- ✓ Large flat anvil
- ✓ Small flat anvil



ERGOTEST DIGI 25



Automatic cycle digital readout hardness tester

Top of the Ergotest range are DIGI models, the most advanced among Galileo hardness testers of LTF production. The operative features of the new version have been greatly improved so as to reach even higher performances.

The following functions are all under microprocessor based electronics control: power supply; cycle drive; AC-to-DC conversion of the transducer measurement and processing according to ISO, ASTM and SAE standards; digital display of the Rockwell hardness value; selection of cycle variables (test type and dwell time); tolerance range for the "go / no go" function; display of the corresponding set values and of indentation depth; interfaces driving; self-diagnosis for rapid monitoring of the instrument electromagnetic and electronic components.

The operative interface to the instrument is simplified by a new interactive menu, which presents a backlight LCD display, provided with alphanumerical (8 lines x 16 characters) and graphic (128 x 4 pixels) readout as well as a new keyboard with 16 soft keys.

The measuring device consists of a differential linear transducer, allowing a resolution of 0.0001 mm, which brings to a final resolution of 0.1 Rockwell units. Load selection is by means of a handy-placed knob on the right side of the machine.

Test operation is automatic once the pre-loading effected by the operator has been confirmed by the appropriate signal.

The new software allows an automatic approximate conversion of the measured value to a different hardness scale or of resistance to tensile stress, calculation of statistical parameters, such as average value, standard deviation, max. and min. values and number of measurements. Besides, by means of the keyboard, it allows input of some parameters aimed at tests documentation (date, specimen No., batch No.).

The display mode of results, (i.e. single measurement, list of all effected measurements, table with all statistical parameters, measurement histogram, "historical diagram") as well as the data output mode by means of three different interfaces (i.e. Centronics parallel to the printer, RS232C serial to PC or Host Computer, along with a special one for output to PC by keyboard emulation) complete the upgrading of the instrument.

The model Ergotest DIGI 25 RS can carry out Rockwell standard and superficial testing as well as Brinell and Vickers indentations, using the appropriate indenters. The Ergotest DIGI 25 R does not allow to carry out Rockwell superficial tests.

Complies with ASTM E18, E140 and SAE J-417b.



TECHNICAL DATA:

- LCD display provided with practical, simple and quick use alphanumerical and graphic readout
- Resolution 0.1 Rockwell
- Load dwell time selection
- Guide choice of the configuration in the different measurement test
- Results compared with values as per Standards
- batch management with possibility of save/recall on the outside devices as USB- company network LAN
- Possibility to put in nominal value and tolerance
- Software for the calculation of statistical parameters, such as average value, standard deviation, max. and min. values and number of measurements with indication "out of tolerance", date, specimen No., batch No., histogram with indication of +/- 3 sigma, line graphic for the indication of the tests tendency.
- Data conversion into text format or Excel
- Software automatic updating by USB
- Automatic conversion of the value measured in a different hardness scale: Rockwell, Brinell, Knoop, Vickers and tensile strenght as per "Galileo tables" or ISO 18265
- Automatic correction of measurements on the cylindrical and spherical pieces as per ISO Standards
- Automatic test cycle with electronic check of the process
- Load choice through selector with electronic check of the correct selection
- Diagnosis and test menu
- Different languages selection
- Serial interface RS232 for WiFi printer Ethernet port for connection to LAN network or Host Computer
- USB Interface for data transfer
- Max. test specimen height 295 mm – throat depth 220 mm
- User manual
- Hardness conversion booklet
- Dust plastic cover
- ISO Standard S.I.T. certificate available as follows:
 - direct and indirect verification for standard Rockwell testing direct load verification for Brinell and Vickers testing(direct and indirect verification only if it is mounted the accessory 742032280 or 742032261)



Advanced Digital Rockwell/Superficial Rockwell Hardness Tester

Model No. : KHR-300 (Rockwell);KHR-310 (Superficial);KHR-320 (Twin Rockwell)

- Horizontal Protrudent Indenter Design, suitable also for internal and external testing.
- Testing on Surfaces difficult to reach. Testing internal surface of rings and tubes with diameters over 23mm.
- Modern design with Titanium metallic Silver finish
- Provided with many features such as high measuring precision, wide measuring range
- The tester is suitable for testing of carbon steel, alloy steel, cast iron, non-ferrous metal
- Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.
- Measuring results digitally displaying and can be printed, or transmitted to external computer automatically by USB or RS-232 data output port.
- Test value can be transformed to the value of HB, HV, HK and ob value.
- The tester meets all of the following standards: ISO 6508-2, ASTM E18.



Touch Screen Rockwell Hardness Testers

The PTS models MRD-600TS and MRD-600STS bring touch screen technology to the hardness testing community. The hardness testers come in Rockwell and Rockwell superficial versions. Loaded with standard features, the hardness testers combine ease of use with reliability.

Standard Features

- ▶ 15 Rockwell scales
- ▶ Hardness conversion HV, HB scales
- ▶ Menu operated touch screen with many functions such as GO/NG, conversion, total test force, date/time
- ▶ Shape correction
- ▶ Built-in printer shows values and statistics
- ▶ RS232 interface
- ▶ Accuracy, reliability and durability at extremely affordable price
- ▶ Rugged construction, excellent stiffness
- ▶ Accuracy conform EN-ISO 6508 and ASTM E-18 GB/T230.2
- ▶ Automatic test force selection in accordance with hardness scale
- ▶ Large working space accommodates larger specimen
- ▶ Wide range of standard delivery



Closed Loop Digital Rockwell Hardness Tester model KB-150 R

The KB closed loop hardness tester boasts German cutting edge technology. User friendly operation affords operator confidence in achieving high levels of repeatability and accuracy.

Powerful programmable panel with integrated color LCD monitor easy to use, rich in contrast and nearly blind free. No parallax error in measurement of indenting points. As a option, the video image can be stored, on a PC as a bmp-data file.



Features:

- Bright LCD – Farbdisplay
- Flexible software control
- Motorized load system with load cell, closed loop system
- 200 free adjustable test programs
- 3 selectable languages D – F – E

Closed Loop Universal Hardness Tester model KB – 250

PTS brings to the hardness testing community truly world-class technology in universal hardness testers. The series KB 150, 250, 750, 1000 and 3000 universal hardness testers offer the right solution for the right application with different loads and scales for different testing requirements. The KB series closed loop systems feature precision motors and load cell technology affords measurement in fully automatic test procedures.

Main Features:

- Fully automatic test procedure
- Optical evaluation via integrated CCD camera
- Zoom objective 1:7
- Parallax free measurements
- Controlled load application by load cells
- LED lighting
- Rockwell resolution of 0,025 HRC units
- 200 free programmable test definitions
- Available as a Calibration machine (option)
- New type of LED ring light (option)
- Image analyzing system (option)
- Statistical functions: Number of tests, min / max, Average value, Range, Standard deviation cp / cpk, Histogram.

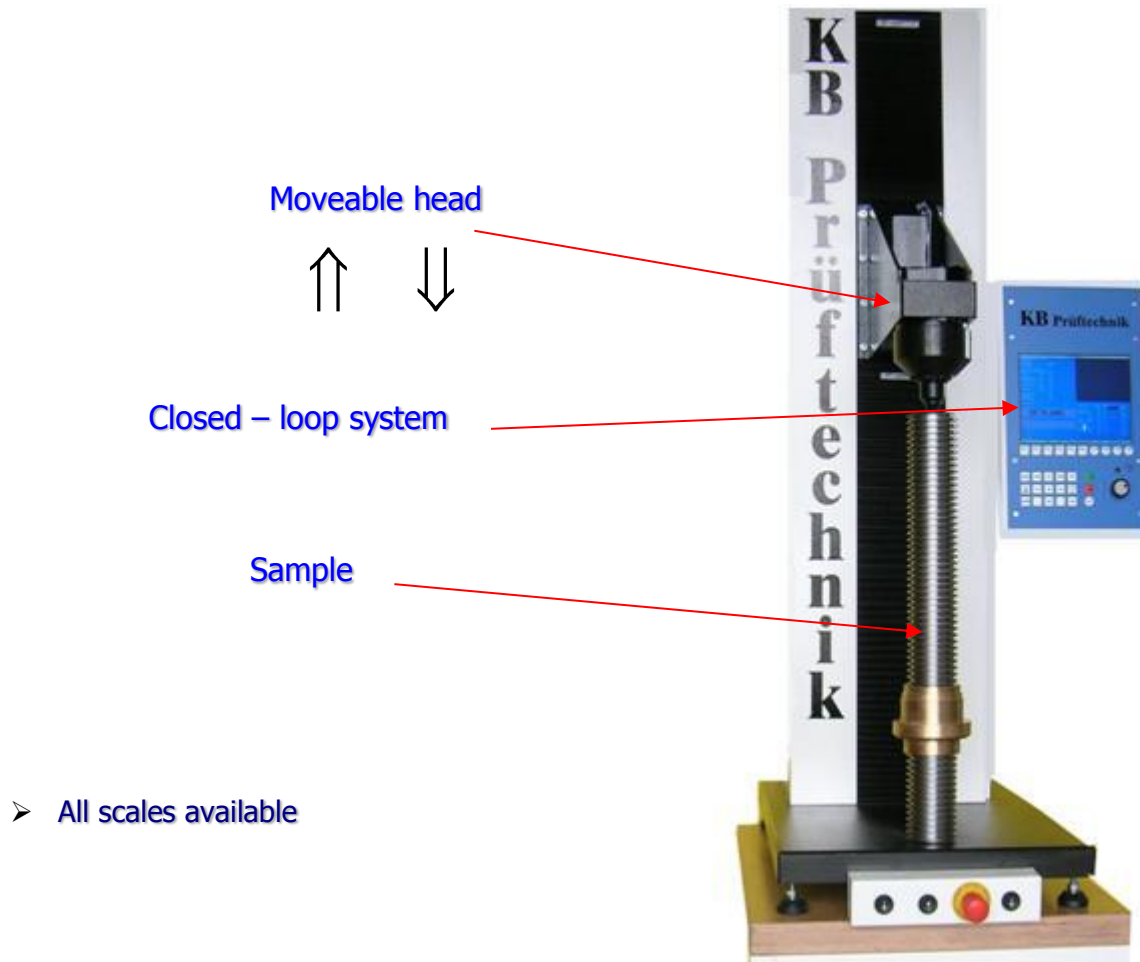


Option: Image Analyzing System

No further influences on the results given by the operators. Brinell and Vickers indentations are measured automatically with highest precision, also in connection with the optional ring light. Extremely bad surface; Example: cast iron with real bad surface - no problem to measure automatically with ring light.

Special Hardness Testing Applications

KBE* C-Frame Shaft Hardness Tester 150RKB Digital Rockwell Tester



C- Frame for universal hardness testing head for automatic Rockwell procedure in compliance with the standards. Machine with one spindle.

KB MAMMUT- Series

The **KB MAMMUT-** series constitutes the ideal solution for hardness testing applications in large specimens. With it's special frame and external test heads, the Mammut series has the capability of performing hardness tests on large specimens in according to the standards Brinell, Vickers and Rockwell up to 3000 kilograms.

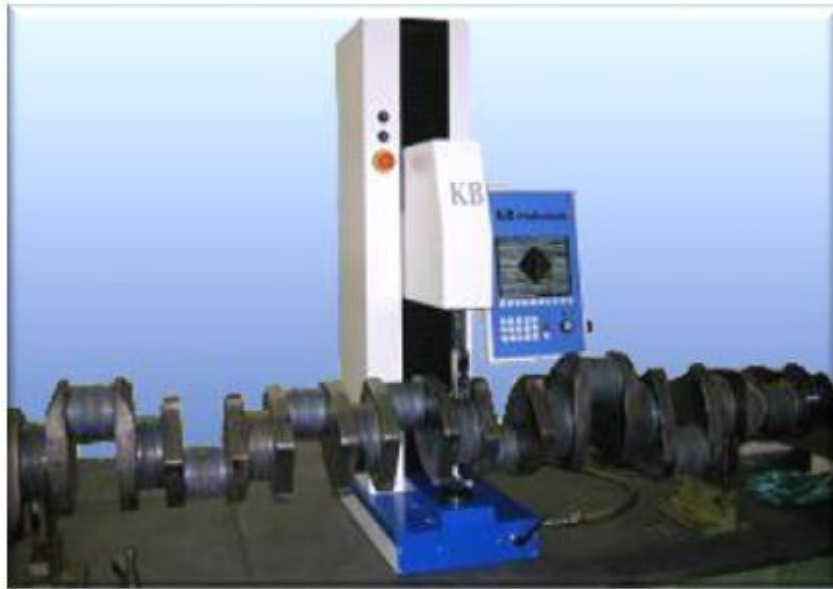
Technical specifications (test head KB- MAMMUT- 3000 BVRZ-K):

- **Test procedures (standardized):**
- ✓ **Vickers - DIN EN ISO 6507:** 20 - 30 - 40 - 50 - 60 - 80 - 100 - 120
- ✓ **Brinell - DIN EN ISO 6506:** 2,5/31,25 - 2,5/62,5 - 2,5/187,5 - 5/25 - 5/62,5 - 5/125 - 5/250 - 5/750 - 10/100 - 10/125 - 10/250 - 10/500 - 10/1000 - 10/1500 - 10/3000
- ✓ **Rockwell - DIN EN ISO 6508:** A - B - C - D - E - F - G - H - K
- ✓ **Ball indentation - DIN ISO 2039 T1 (for plastics)**
- ✓ **Test procedure out of international standards**
- ✓ **Vickers – depth measurement:** HVT 30 – 100
- ✓ **Brinell – depth measurement:** HBT 2,5/31,25 - 2,5/62,5 - 2,5/187,5 - 5/25 - 5/62,5 - 5/125 - 5/250 - 5/750 - 10/100 - 10/125 - 10/250 - 10/500 - 10/1000 - 10/1500 - 10/3000
- ✓ **Rockwell – Makro:** HMR 5/250
- Load range 20 – 3000 kg
- Test head hydraulically clampable
- Contact pressure of clamping cab: 150 kg
- Optical measurement with integrated video system
- Large LCD– color display, 10,4", 800 x 600 Pixel resolution
- Variable software adjustment
- Motorized ZOOM with 10 steps, magnification factor 1:7
- Motorized load system with load cell, closed loop system
- 200 freely definable test programs
- Test-values memory for 2000 single values/ test program
- Languages: German, English, French, Italian, Swedish
- Motorized ZOOM with 10 steps, magnification factor 1:7
- CCD- camera with high resolution, 2/3 " S/W Chip
- Economical LED lighting for long life span of the lighting unit
- Automatic measurement (optional)



Special Hardness Tester on Crankshafts

KB 30BVZ-SLK



Movable hardness tester on air- cushion for crankshafts

Technical Specifications:

- **Test forces:**
 - **Vickers – DIN EN ISO 6507:1 - 2 - 3 - 5 - 10 - 20 – 30**
- By its zoom shot technology only 1 objective is necessary
- Economical LED lighting for long life span of the lighting unit
- The only hardness tester which offers an automatic measurement already in the basic equipment (option)
- Simplest operation by proven video panel with statistics overview
- Optical measurement with integrated video system
- variable software adjustment
- 200 freely definable test programs
- Test-values memory for 2000 single values/ test program
- Languages: German, English, French, Italian, Swedish
- Large LCD– colour display 10,4", 800 x 600 Pixel resolution
- CCD- camera with high resolution 1/3 " B/W Chip
- Motorized ZOOM with 10 steps, magnification factor 1:7
- Objective 10x for HV 1 - HV 30
- Interface RS 232

Brinell Hardness Testers

Brinell hardness is commonly required for testing unquenched steels, cast iron, non-ferrous metals and soft bearing alloys. The **PTS** Brinell hardness testers offer accuracy, versatility, durability, and affordability. Brinell testers are available in bench and portable type configurations.

MODEL HB-3000B BRINELL HARDNESS TESTER

Feature & Use:

- Electronic reversing switch
- It's steady and reliable for testing of curved surface
- Precision conforms to GB/T 231.2, ISO 6506-2 and ASTM E10

Specifications:

- Measuring range: 8-650HBW
- Test force: 1838.8, 2415.8, 7355.3, 9807, 29421N (187.5, 250, 750, 1000, 3000kgf)
- Max. height of test piece: 230mm
- Depth of throat: 120mm
- Power supply: 220V AC or 110V AC, 50 or 60Hz
- Dimensions: 700 x 268 x 842mm
- Weight: approx. 210kg



BLD/T-3000TS TOUCH SCREEN DIGITAL BRINELL HARDNESS TESTER

The Brinell BLD/T-3000TS Touch Screen Digital Brinell Hardness Tester introduces the closed-loop control system for fast, precise, and reliable testing. Designed with a rugged construction to withstand the harshest environments, this reliable testing machine offers high rigidity and excellent repeatability. HBW and HBT test methods are available in this machine.

With its user-friendly touch screen, this machine offers user an easy-to-use interface to set up and operate hardness testing machine and output the statistics. It is an upgraded product of 3000BLD/T.

Features:

- Digital display of hardness value
- Hardness conversion between different hardness scales
- Full automatic closed loop control system
- Automatic test process, no human operating error
- Large touch screen display of testing process, easy operation
- Precision conforms to GB/T 231.2, ISO 6506-2 and ASTM E10



Brinell High Volume Hardness Testers

HBM-3000B Gate Type Brinell Hardness Tester

Specifications:

- Measuring range: 32-450HBS
- Test force: 7.355, 9.807, 29.42KN (750, 1000, 3000kgf)
- Distance between penetrator and worktable: 10-1000 mm
- Distance between two vertical columns: 1350 mm
- Dimensions of worktable(L x W): 1500 x 1000 mm
- Power supply: 380V AC
- Dimensions: main machine 2000 x 1800 x 2180 mm
- control box 510 x 500 x 1450 mm
- Weight: main machine approx. 3000kg
- Control console: approximately 40kg



Automatic in-line High Pressure Gas Bottle Brinell Hardness Tester



This equipment may be used to determine the Brinell hardness of steel bottle after heat treatment. It can remove the oxidation-layer on the surface of work piece, finish the steps of loading, dwelling and unloading, catch indentation by a CCD system and display the Brinell hardness number. Above processes are all automatic. The measured Brinell hardness can also be converted to other different hardness scales. The specially designed software can be used for storage, statistic, edit, analysis of the testing data.

Features:

- Automatic hardness test, LCD digital display
- Hardness conversion between different hardness scales
- Precision conforms to GB/T 231.2, ISO 6506-2 and ASTM E10

Specifications:

- Measuring range: 96-650HBW
- Test force: 3000kgf
- Measuring speed: ≤ 120 seconds/point
- Work piece: Columned work piece (wall thickness 10-30mm, no limit for diameter & length).
- Place of measuring: Any positions on the outside surface
- Power supply: 380V/220V AC.



King Tester Portable Brinell Hardness Tester

The King portable instrument has a hydraulic system and the test force is applied by means of a handle. The test condition applies 3000kg test force on a 10mm carbide indenter. It can result in permanent indentations for re-inspection. The test condition meets the requirements of ISO 6506 and ASTM E110.

Main Technical Parameters

- Test Force: 3000kg (500kg, 750kg, 1000kg, and 1500kg optional)
- Indenter: Φ 10mm carbide ball indenter (Φ 5mm optional)
- Testing Range: 100-650HBW (expendable to 28-650HBW)
- Max. Specimen Height: 320mm
- Throat Depth: 100mm
- Accuracy: complies with ISO 6506
- Repeatability: complies with ISO 6506
- Net Weight: 13.8kg



Application:

- **On-site Testing:** It is a portable instrument suitable to use in the plant. It is easy to operate and convenient to carry. So it can be used to easily test large work pieces in any direction on site.
- **Permanent Indentation:** With 3000kg test force and 10mm ball indenter, the indentation can accurately reflect the true hardness of cast iron, cast steel, forged piece, and other materials with coarse grain. The permanent indentation can be re-inspected at any time after testing.
- **Real Result:** PHB-3000 has the same principle as the bench type Brinell hardness tester. So the result is totally different from the conversion value of other portable hardness testers (eg. Rebound type hardness tester).
- **Wide Testing Range:** PHB-3000 has various test forces and two different ball indenters in order to test different metals.

Standard Accessories

- Tester
- Handle
- Standard Brinell hardness block
- 20X reading microscope (with LED light)
- V anvil
- Flat anvil
- Dome anvil
- Φ 10mm spare carbide ball indenter

DIGITAL BRINELL MICROSCOPE AND SOFTWARE SYSTEMS

DIGITAL BRINELL MICROSCOPES

PTS has a complete line of portable Brinell microscope systems to meet the customer demands. The PTS digital Brinell Microscopes can be used with any Brinell hardness tester. As an independent measurement system, it can measure the Brinell indentation accurately, quickly, reliably and is portable. The microscope uses a CCD camera to capture the indentation image. PTS has three models to choose from:



- Brimatic for the budget oriented requirements.
- The Lynx turn key system.
- The new Falcon system.

The Brimatic system includes a CD ROM, a USB key, software and a microscope with CMOS camera.

The Lynx system includes:

- A notebook or desk top PC
- 1 microscope (LINX type or installed on hardness tester)
- 2 remote controls
- Dedicated hardware and software.
- 4 m camera connection armored cable
- 2 m camera connection cable
- 1 test block with 5 indentations



The Falcon systems is a cutting edge integrated devise that introduces a new concept to Brinell microscopy with the following features:

- Integrated system with microscope and digital display
- No need to carry around a laptop or PC.
- New and Automatic dedicated hardware and software.
- 1 Test block with 5 indentations
- 1 CD with software for connection to PC



Features:

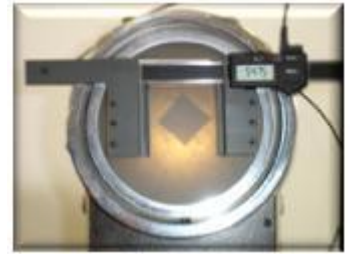
- Special software easy to use
- Single testing and batch testing mode are available
- Tolerance setting, distinguishing and alarming
- Statistics values with maximum, minimum, average, R and S are available
- Results can be converted to other scales, such as HRC, HRB, HRA, HV.
- All test results and indentation images are saved automatically
- Convenient report generation capabilities with Microsoft Excel.
- Free software updates

BRINELL SOFTWARE AND UPGRADE SYSTEMS

C MAX U SOFTWARE

The C – MAX software in the version HB and HV(macro) performs the measurement of VICKERS or BRINELL indentations and generation of hardness to the your type of instruments. The software has the following features:

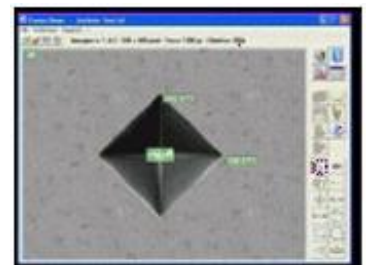
- Search for code and export of measured values
- Measure with statistics
- Supply of the linear encoder with connections by RS 232-USB
- Supply of the software inside CD-ROM or USB KEY for a easy restore
- USB Key protection
- Assistance directly by e-mail or internet Visualization of the hardness value
- Calibration instrument for every scale
- Integrated Service menu CD ROM with software



C TAURUS SOFTWARE

The C Taurus software in the version HV(macro) allows the measurement of VICKERS or BRINELL tests and generations of hardness to the your type of instruments. The software has the following features:

- Search for code and export of measured values
- Measure with statistics
- Supply of the CCD CAMERA with connections by USB
- Supply of the software inside CD-ROM or USB KEY for a easy restore
- USB Key protection
- Assistance directly by e-mail or internet Visualization of the hardness value
- Calibration instrument for every scale
- Integrated Service menu CD ROM with software



CARACALL SYSTEM

The Caracall system is the ideal solution for upgrade requirements of REICHERTER Brinell hardness testers. The system uses the powerful LINX-FIX software in the HB version HB and has the following

Features:

- Search for code and export of measured values
- Measure with statistics
- Supply of the linear CCD CAMERA with connections by USB
- Supply of the software inside CD-ROM or USB KEY for a easy restore
- USB Key protection
- Assistance directly by e-mail or internet Visualization of the hardness value
- Calibration instrument for every scale
- Integrated Service menu CD ROM with software for an eventual restoration of all the functions



Sales Offices

<u>Headquarters</u> PHYSICAL TEST SOLUTIONS 11952 Lindblade St. Culver City, CA. 90230 Tel: (310) 736-1901 info@physicaltestsolutions.com www.physicaltestsolutions.com/ USA MEASURENOW, St. Louis Tel: 314-993-2833 service@measurenow.com http://www.measurenow.com/ Assurance Tech, Chicago Telephone: (630) 550-5000 kenn@atiquality.com www.atiquality.com/ Deterco Inc. Houston Tel: (800) 943-3812 sales@deterco.com www.deterco.com/ Physical Testing Equipment Services, Johnston, RI Phone: (401) 944-4760 info@physicaltestingequipsv.com www.physicaltestingequipsv.com Measure-All, Inc., Ohio Tel: 1-800-758-2376 sales@measure-all.com www.measure-all.com/ <u>México</u> Alteq de Mexico - Monterrey Tel: (81) 8383-6129 alteq@alteq.com.mx www.alteq.com/ Metrología y Pruebas S.A. de C.V. Tel: (631) 314-6263 ericaud@mypsa.com.mx www.mypsa.com.mx Mess - Queretaro Tel. (442) 196 49 38 omarmorales@prodigy.net.mx	<u>México</u> Cientec S.A. de C.V. Tel.(52 33) 38-17-81-22 /23 ventas@cientec.com.mx www.cientec.com.mx/ Comercializadora Rivas Tel: (55) 5577-3067, 5781-9882 comrivasa@yahoo.com.mx www.rivasa.com.mx Equiser, Puebla Tels. (222) 114 2845 victor@equiser.com.mx <u>Latin America</u> Argentina Mess s.a. Tel. / Fax: (5411) 4334-8592 rcsalazar@messmedicion.com.ar www.messmedicion.com.ar/ Brazil Sultrade Com e Importacao Tel.: 55 11 5182-7522 vendas@sultrade.com.br http://www.sultrade.com.br/ Skill-tec Tel : (55)(11) 2957-5888 skill-tec@uol.com.br www.skilltec-assistencia.com.br Regmed Ind. Téc. de Precisão Tel: + 55 11 3601-5700 regmed@regmed.com.br http://www.regmed.com.br/ Colombia Arotec Colombiana Tel: (571) 288-7799 arotec@arotec.net www.arotec.net Chile Arquimed S.A. Tel: (56-2) 6346266 jortiz@arquimed.cl Peru Sertecsa Tel: 51-198296708 sertecsa@terra.com.pe	<u>Europe</u> Italy ATS FAAR SpA Tel: +39 02 95360686 atsfaar@atsfaar.it http://www.atsfaar.it England A.J.T. Equipment Limited Tel: +44 (0) 1384 482 848 admin@ajtequipment.co.uk http://www.ajt-testing.com/ France Sodexim Tel: 33-(0) 326-0291-11 sodexim@sodexim.org Tema Concept Tél: 33-(0)1-39-70-20-50 info@tema-concept.com Greece M.I Priniotakis S.A. 30-210-7227719 ikafegidakis@priniotakis.gr Egypt Scientific Trading Co. Tel: : 202-2670-3806 galal_nough@nouh.com.eg Asia India Unitestmac Systems Ltd. Tel:91-11-25894580 / 25894782 sales@unistestmac.com Malaysia Dutech Scientific (M) Sdn. Bhd. Tel: 6 03-7956 7861 pau@dutechscientific.com Vietnam Top Technology JSC Tel: 84 8 2842405 t-tech@viettel.vn Pakistan Glow Pak International Tel: 92-42-585-2526 glowpak@brain.net.pk
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